



# ECSi

***"Your Regulatory Compliance Expert"***

May 10, 2016

Ms. Laura Hartman  
Manager, Environmental Health and Safety  
STERIGENICS, INC.  
2015 Spring Road, Suite 650  
Oak Brook, Illinois 60523

**Subject: RESULTS OF ETHYLENE OXIDE SOURCE TESTING PERFORMED AT THE STERIGENICS FACILITY IN LOS ANGELES, CALIFORNIA**

Dear Ms. Hartman:

Please find attached a presentation of the results of the ethylene oxide source testing and leak testing performed at your 49<sup>th</sup> Street and 50<sup>th</sup> Street facilities in Los Angeles, CA by ECSi, on Tuesday, May 10, 2016. These test results are to be kept with all records pertaining to SCAQMD-required testing of the EtO gas-sterilization system, and are to be made available upon request by the SCAQMD. A copy of all raw test data, complete with sample chromatograms and calibration data, will be maintained in our files, and will be made available upon request.

The test results indicate that you continue to operate the EtO sterilization and emission-control systems at both facilities in compliance with SCAQMD Rule 1405. I will follow up with you in approximately five months to let you know when your next semi-annual leak test is due, and in approximately eleven months to let you know when your next annual source test/leak test is due.

If you have any questions or comments regarding this submittal, please contact me at (949)400-9145. We thank you for the opportunity to serve your needs.

Respectfully Submitted:

Daniel P. Kremer  
ECSi

**TABLE 1**  
**ETHYLENE OXIDE CONTROL EFFICIENCY - BACKVENT**  
**OF AN ETHYLENE OXIDE EMISSION CONTROL DEVICE (49TH ST ABATOR)**  
**OPERATED BY STERIGENICS, INC.**  
**IN LOS ANGELES, CALIFORNIA**  
**ON MAY 10, 2016**

<b><u>CYCLE</u></b> <b><u>PHASE</u></b>	<b><u>INJECTION</u></b> <b><u>TIME</u></b>	<b><u>INLET ETO</u></b> <b><u>CONC. (PPM)(1)</u></b>	<b><u>OUTLET ETO</u></b> <b><u>CONC. (PPM)(2)</u></b>	<b><u>ETO CONTROL</u></b> <b><u>EFFICIENCY</u></b>
Backvent(3)	930	56.9	0.01	99.9824
Backvent	931	10.4	0.01	99.9038
Backvent	933	8.27	0.01	99.8791
Backvent	934	7.33	0.01	99.8636
Backvent	935	6.80	0.01	99.8529
Backvent	936	6.79	0.01	99.8527
Backvent	937	6.43	0.01	99.8445
Backvent	938	6.01	0.01	99.8336
Backvent	940	5.88	0.01	99.8299
Backvent	941	5.72	0.01	99.8252
Backvent	942	5.54	0.01	99.8195
Backvent	943	5.39	0.01	99.8145
Backvent	944	<u>5.36</u>	<u>0.01</u>	<u>99.8134</u>
<b>TIME-WEIGHTED AVERAGE:</b>		<b>10.52</b>	<b>0.0100</b>	<b>99.8550</b>
<b>SCAQMD REQUIRED CONTROL EFFICIENCY:</b>				<b>99.0</b>

Notes:

- (1) - PPM = parts per million by volume
- (2) - 0.01 ppm is the quantification limit for the detector used at the outlet.
- (3) - The backvent phase test run started at 9:30, ended at 9:45.
- (4) - The average Abator catalyst bed temperature during the backvent phase test run was 285 degrees F.

**TABLE 2**  
**ETHYLENE OXIDE CONTROL EFFICIENCY - AERATION**  
**OF AN ETHYLENE OXIDE EMISSION CONTROL DEVICE (49TH ST ABATOR)**  
**OPERATED BY STERIGENICS, INC.**  
**IN LOS ANGELES, CALIFORNIA**  
**ON MAY 10, 2016**

<u>RUN NUMBER</u>	<u>INJECTION TIME</u>	<u>INLET ETO CONC. (PPM)(1)</u>	<u>OUTLET ETO CONC. (PPM)(2)</u>	<u>ETO CONTROL EFFICIENCY</u>
1(3)	947	5.17	0.01	99.8066
1	952	3.78	0.01	99.7354
1	957	3.82	0.01	99.7382
1	1002	4.20	0.01	99.7619
1	1007	4.58	0.01	99.7817
1	1012	4.12	0.01	99.7573
1	1017	3.94	0.01	99.7462
1	1022	3.90	0.01	99.7436
1	1027	4.80	0.01	99.7917
1	1032	3.44	0.01	99.7093
1	1037	4.14	0.01	99.7585
1	1042	3.23	0.01	99.6904
2(4)	1047	3.57	0.01	99.7199
2	1052	3.07	0.01	99.6743
2	1057	3.37	0.01	99.7033
2	1102	3.33	0.01	99.6997
2	1107	3.62	0.01	99.7238
2	1112	3.56	0.01	99.7191
2	1117	3.20	0.01	99.6875
2	1122	2.89	0.01	99.6540
2	1127	3.30	0.01	99.6970
2	1132	2.97	0.01	99.6633
2	1137	2.97	0.01	99.6633
2	1142	2.50	0.01	99.6000
3(5)	1147	3.16	0.01	99.6835
3	1152	3.21	0.01	99.6885
3	1157	2.66	0.01	99.6241
3	1202	2.70	0.01	99.6296
3	1207	2.31	0.01	99.5671
3	1212	3.21	0.01	99.6885
3	1217	2.30	0.01	99.5652
3	1222	2.70	0.01	99.6296
3	1227	2.43	0.01	99.5885
3	1232	2.79	0.01	99.6416
3	1237	2.78	0.01	99.6403
3	1242	<u>2.72</u>	<u>0.01</u>	<u>99.6324</u>
<b>TIME-WEIGHTED AVERAGE:</b>		<b>3.346</b>	<b>0.0100</b>	<b>99.6890</b>
<b>SCAQMD REQUIRED CONTROL EFFICIENCY:</b>				<b>99.0%</b>

Notes:

- (1) - PPM = parts per million by volume
- (2) - 0.01 ppm is the quantification limit for the detector used at the outlet.
- (3) - Aeration Phase Test Run #1 started at 9:45, ended at 10:45.
- (4) - Aeration Phase Test Run #2 started at 10:45, ended at 11:45.
- (5) - Aeration Phase Test Run #3 started at 11:45, ended at 12:45.
- (4) - The average catalyst bed temperature recorded during the test was 285 degrees F.

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**TABLE 3**  
**ETHYLENE OXIDE CONTROL EFFICIENCY - BACKVENT**  
**OF AN ETHYLENE OXIDE EMISSION CONTROL DEVICE (50TH ST ABATOR)**  
**OPERATED BY STERIGENICS, INC.**  
**IN LOS ANGELES, CALIFORNIA**  
**ON MAY 10, 2016**

<u>CYCLE</u> <u>PHASE</u>	<u>INJECTION</u> <u>TIME</u>	<u>INLET ETO</u> <u>CONC. (PPM)(1)</u>	<u>OUTLET ETO</u> <u>CONC. (PPM)(2)</u>	<u>ETO CONTROL</u> <u>EFFICIENCY</u>
Backvent(3)	1345	2.32	0.01	99.5690
Backvent	1346	36.0	0.01	99.9722
Backvent	1348	6.97	0.01	99.8565
Backvent	1349	4.71	0.01	99.7877
Backvent	1350	3.99	0.01	99.7494
Backvent	1351	4.11	0.01	99.7567
Backvent	1353	3.66	0.01	99.7268
Backvent	1354	3.76	0.01	99.7340
Backvent	1355	3.50	0.01	99.7143
Backvent	1356	3.58	0.01	99.7207
Backvent	1357	3.55	0.01	99.7183
Backvent	1358	<u>3.57</u>	<u>0.01</u>	<u>99.7199</u>
<b>TIME-WEIGHTED AVERAGE:</b>		<b>6.643</b>	<b>0.0100</b>	<b>99.7521</b>
<b>SCAQMD REQUIRED CONTROL EFFICIENCY:</b>				<b>99.0</b>

Notes:

- (1) - PPM = parts per million by volume
- (2) - 0.01 ppm is the quantification limit for the detector used at the outlet.
- (3) - The backvent phase test run started at 13:44, ended at 13:59.
- (4) - The average Abator catalyst bed temperature during the backvent phase test run was 285 degrees F.

**TABLE 4**  
**ETHYLENE OXIDE CONTROL EFFICIENCY - AERATION**  
**OF AN ETHYLENE OXIDE EMISSION CONTROL DEVICE (50TH ST ABATOR)**  
**OPERATED BY STERIGENICS, INC.**  
**IN LOS ANGELES, CALIFORNIA**  
**ON MAY 10, 2016**

<u>RUN NUMBER</u>	<u>INJECTION TIME</u>	<u>INLET ETO CONC. (PPM)(1)</u>	<u>OUTLET ETO CONC. (PPM)(2)</u>	<u>ETO CONTROL EFFICIENCY</u>
1(3)	1402	3.44	0.01	99.7093
1	1407	3.31	0.01	99.6979
1	1412	3.27	0.01	99.6942
1	1417	3.33	0.01	99.6997
1	1422	3.51	0.01	99.7151
1	1427	3.53	0.01	99.7167
1	1432	3.32	0.01	99.6988
1	1437	3.28	0.01	99.6951
1	1442	3.32	0.01	99.6988
1	1447	3.96	0.01	99.7475
1	1452	3.42	0.01	99.7076
1	1457	3.64	0.01	99.7253
2(4)	1502	4.14	0.01	99.7585
2	1507	3.51	0.01	99.7151
2	1512	3.27	0.01	99.6942
2	1517	3.58	0.01	99.7207
2	1522	3.54	0.01	99.7175
2	1527	2.52	0.01	99.6032
2	1532	2.19	0.01	99.5434
2	1537	2.15	0.01	99.5349
2	1542	2.18	0.01	99.5413
2	1547	2.32	0.01	99.5690
2	1552	2.28	0.01	99.5614
2	1557	2.31	0.01	99.5671
3(5)	1602	2.26	0.01	99.5575
3	1607	2.29	0.01	99.5633
3	1612	2.35	0.01	99.5745
3	1617	2.62	0.01	99.6183
3	1622	2.95	0.01	99.6610
3	1627	2.62	0.01	99.6183
3	1632	2.46	0.01	99.5935
3	1637	2.57	0.01	99.6109
3	1642	2.64	0.01	99.6212
3	1647	2.47	0.01	99.5951
3	1652	2.64	0.01	99.6212
3	1657	<u>2.77</u>	<u>0.01</u>	<u>99.6390</u>
<b>TIME-WEIGHTED AVERAGE:</b>		<b>2.943</b>	<b>0.0100</b>	<b>99.6474</b>
<b>SCAQMD REQUIRED CONTROL EFFICIENCY:</b>				<b>99.0%</b>

Notes:

- (1) - PPM = parts per million by volume
- (2) - 0.01 ppm is the quantification limit for the detector used at the outlet.
- (3) - Aeration Phase Test Run #1 started at 14:00, ended at 15:00.
- (4) - Aeration Phase Test Run #1 started at 15:00, ended at 16:00.
- (5) - Aeration Phase Test Run #1 started at 16:00, ended at 17:00.
- (4) - The average catalyst bed temperature recorded during the test was 285 degrees F.

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**TABLE 5**  
**ETHYLENE OXIDE LEAK TESTING**  
**OF A GAS STERILIZATION SYSTEM (6 STERILIZERS)**  
**OPERATED BY STERIGENICS, INC. (50TH ST PLANT)**  
**IN LOS ANGELES, CALIFORNIA**  
**ON MAY 9, 2016**

<u>COMPONENT GROUP TESTED</u>	<u>LEAKING COMPONENTS FOUND</u>	<u>CONCENTRATION</u>
Supply Tanks / Load Station	None	<1.0 ppm (1)
Sterilizer Inlet / Inbleed Valve	None	<1.0 ppm
Door Seal	None	<1.0 ppm
Sterilizer Outlet / Chamber Drain	None	<1.0 ppm
Vacuum Pump / Floor Drain	None	<1.0 ppm
Emission Control Device Inlet	None	<1.0 ppm

Notes:

(1) - PPM = parts per million by volume

**TABLE 6**  
**ETHYLENE OXIDE LEAK TESTING**  
**OF A GAS STERILIZATION SYSTEM (8 STERILIZERS)**  
**OPERATED BY STERIGENICS, INC. (49TH ST PLANT)**  
**IN LOS ANGELES, CALIFORNIA**  
**ON MAY 9, 2016**

<u>COMPONENT GROUP TESTED</u>	<u>LEAKING COMPONENTS FOUND</u>	<u>CONCENTRATION</u>
Supply Tanks / Load Station	None	<1.0 ppm (1)
Sterilizer Inlet / Inbleed Valve	None	<1.0 ppm
Door Seal	None	<1.0 ppm
Sterilizer Outlet / Chamber Drain	None	<1.0 ppm
Vacuum Pump / Floor Drain	None	<1.0 ppm
Emission Control Device Inlet	None	<1.0 ppm

Notes:

(1) - PPM = parts per million by volume